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# NEW PHILIPPINE BUTTERFLIES

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This paper presents five new species and seventeen new subspecies of butterflies found in the collections of the University of San Carlos and the Jumalon family in Cebu City.

In this series, the central and southern Philippines, as well as Palawan are represented. The following gives the genera to which the new species or subspecies belong and the provinces they came from.

Central Philippines: *Delias*-Negros Oriental and Bohol; *Elymnias*-Negros Oriental; *Neptis*-Cebu; *Pantoporia*-Negros Oriental and Samar; *Euthalia*-Negros Oriental and Leyte; *Tanaecia*-Negros Oriental and Cebu; *Polyura*-Bohol; *Iraota*-Leyte; *Pratapa*-Negros Oriental, Cebu and Leyte.

Southern Philippines: *Cyrestis*-Mindanao; *Remelana*-Mindanao.

Palawan: *Papilio*; *Pantoporia*; *Euthalia*.

In the recent issues of Tyô to Ga and Yadoriga, the author gladly noted the presentation of new species and subspecies of butterflies, mostly from Luzon, by active Japanese lepidopterists, viz. Shirozu and Saigusa (1970), Murayama and Okamura (1973), Kawazoé (1973) and so on. This was largely through the efforts of amateur and professional entomologists visiting the island of Luzon. Since the author has little time to extend his field work to Luzon's large territory and still many unexplored areas, this contribution by Japanese lepidopterists is appreciable indeed. Simultaneous to the publication of their contributions, the author had described some Philippine butterflies which appeared in the Philippine Scientist (1967, 1970, 1971). Since the time of the activities here by the Semper brothers near the turn of the century, there existed a prolonged void, as far as lepidopterology is concerned, so this present revival of lepidoptera study here, is a welcome change.

The rapid disappearance of lush jungles and forests in recent years due to population explosion, logging, and still primitive methods of farming by both Christians and the minorities, should alarm conservationists and especially biologists. So much unstudied flora and fauna from our wilderness shall continue dwindling in number if they have not completely disappeared already. This calls for steeped up collecting and study by dedicated people before it is too late. However, serious field works should be undertaken by dedicated and qualified entomologists instead of leaving the work in the hands of amateurs, enthusiasm notwithstanding.

The author is deeply grateful to a number of people who have extended help and cooperation in various forms to this paper. He is specially indebted to Prof. Dr. Shigeru Albert Ae of Nanzan University for his numerous advices and in taking much pain in contacting the proper people in connection with the publication of this paper and his many other practical suggestions and hints; Mr. Ban Tanaka of Toyota City took great pains in attending to the meticulous and delicate job of photographing the type-series, kindly assisted by Messrs. T. Andoh and I. Imamura, both of the third Philippine expedition party of Japan Entomological Academy. Thanks are due to Assoc. Prof. M. Satô of Nagoya Women's University who so kindly reviewed the manuscript, and to the other gentlemen in Japan who in one way or another have contributed to the early publication of the same. I am also thankful to Prof. William Grznert of the USC Biology Dept. for reviewing the manuscript.

To Rev. Joseph Goertz, S.V.D., the Director of research and scholarships, San Carlos University and to Rev. Henry Schoenig, S.V.D., Chairman of Department of Biology (on leave) and Mrs. Hilda D. Lastimosa, Acting Chairman are due the author's thanks for their consent and encouragement to have this paper published in Japan. The author's sons, Osman and Renato have shared with the author their various knowledge of some of the new butterflies or contributed sugestions pertinent to the presentation of these insects. Thanks are due to the many other people and friends who have in one way or another, contributed efforts and ideas to this work.

## Family Papilionidae

***Papilio karna irauana*** subsp. nov. (Fig. 1)

Male: Antennae, head and body black.

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Upperside of forewing: Color black with irrorations of metallic green scales all over, denser in the subtornal area.

Upperside of hindwing: Color black, the margin deeply crenate; the large metallic blue spot recalls *carnatus* Rothschild, but the inner margin is more gently curved than in the latter; its costal or upper end occupies but a small area of celulle 7, that is, one-third shorter than that covered by an equivalent spot in *carnatus,* which overflows beyond vein 7; the blue area relieved by green color in celulle 2, and this narrows in 1b and 1a, and forms an arc above the red tornal spot, separated from the latter by a broader green-dusted black anterior border; the red tornal ocellus with a large round black center and is margined above in violet line; submarginal large green lunules in 2, 3 and 4 greatly diffuse distally; in 5, 6, and 7 large black marginal lunules, that of 5 and 6 excavating deeply into the distal margin of the blue spot, though not as broad as those in *carnatus*.

Underside of forewing: Color brownish-black; a very feint indication of a postdiscal whitish band, apparent only in the diffuse spots in the tornal area and by the wide, denser scaling of greyish-white above the middle of costa; discal area infuscate; the distal third of the wing dusted with brownish-grey scales, giving it a lighter appearance than those of the distal and basal areas.

Underside of hindwing: Color black with sparse irroration of dull green scales in the basal half of the wing; submarginal band of basally violet-bordered red lunules, as in *karna* Felder, although unlike the latter, the large two red spot in the tornal area do not completely enclose their black spots; red spot in 4 smallest.

Length of forewing: 57 mm.

Female: Unknown.

Holotype: ♂, Irauan, Puerto Princesa, Palawan, November 23, 1968, Osman A. Jumalon leg.

Holotype in the Jumalon family collection.

Named after the type locality which is very rich in study material.

In the same year, it seems, Mr. Y. Honda of Japan, also took a male in southern Palawan. This specimen was featured in 1970 issue of Kagaku-Asahi.

## Family Pieridae

***Delias blanca capcoi*** subsp. nov. (Fig. 2)

Male: Antennae, head and body black.

Upperside of forewing: Ground color black; postdiscal band composed of ovate white spots divided into three upper postdiscal thinner streaks, and the more vivid and larger lower pair in 1b and 2, and in 3a mere dusting of grey scales; a submarginal irregular band of small diffuse white spots, the subapical three similar to the postdiscal, slightly smaller, that in 3, larger and diffuse and drawn more basad, the lower two small.

Upperside of hindwing: Distal half black; with submarginal band of distanced grey roundish spots not going beyond 2; yellow dorso-basal spot roundish and extending into the cell where it is irrorated with black scales, and turns paler on the dorsum's margin.

Underside of forewing: Ground color black with dustings of grey scales, causing it to appear lighter; white spots slightly larger than those of upperside, with an additional pair of ovate spots in cell.

Underside of hindwing: Ground color as in forewing; the black distal area narrower than that of upperside, and the submarginal band of grey spots twice larger than those of upperside, more lunular in shape; the yellow spot extends to discal area, covering two-thirds of 1b, all of 1a, one-half of 2, and about one-third of 3 to 6; veins black; a grey streak behind base curving on the costa shorter than in *uichancoi* Jumalon.

Length of forewing: 32 mm.

Female: Unknown.

Holotype: ♂, Amlan, Negros Oriental, December 1970, J. N. Jumalon leg.

Holotype is deposited in the University of San Carlos collection.

Named in honor of Santiago R. Capco of the Bureau of Science, Manila. Philippine Entomology was benefited by his faithful service.

***Delias blanca uichancoi*** subsp. nov. (Fig. 3)

Female: Antennae, head and body black; abdomen white ventrally.

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Upperside of forewing: Ground color black; the white markings arranged as in male of *blanca* Felder, but with larger discal spot in 1b and 2, and unlike *blanca*'s more basad, large and well defined central spot of the white submarginal band, this is indicated only by a diffuse spot of indefinite shape, and drawn more basad as to appear confluent with the subcostal-postdiscal ovoid white spots; a more or less quadrate, basally diffuse white spot in the cell, the costal half of which is crossed by three fine black lines parallel to the costa; cilia whitish.

Upperside of hindwing: Distal half black, the rest yellow up to the black basal area, traversed by black veins; the submarginal band as in *blanca* but is more grey due to dusting on black scales, as are the other white spots; the yellow spot less rugged in outline than in *blanca*.

Underside of forewing: Color and spots as in upperside, although the spots are more vivid, and the cell spot traversed only by two lines, its margin more cleancut than that of upperside; confluent with the subcostal spots.

Underside of hindwing: Color and markings as in upperside; the wihte spots more vivid and expanded, vein lines stronger.

Length of forewing: 36 mm.

Male: Unknown.

Holotype: ♀, Bilar, Bohol, November 1972, Renato Jumalon leg. Paratype: 1♀, same data as the holotype.

Holotype is kept in the University of San Carlos collection. Paratype is kept in the Jumalon family.

Named in honor of Dr. Leopoldo Uichanco, for many years, Dean of the College of Agriculture, University of Philippines. His contribution to Philippine Entomology is unquestionably great.

## Family Danaidae

***Elymnias sansoni*** sp. nov. (Fig. 4)

Male: Antennae, head and body brownish-black.

Upperside of forewing: Color brownish-black; apex round; margin slightly convex, rugged and mildly undulate; submarginal band of small white spots, that in 5 joined to one of the two subapical larger white oval spots which is diffuse basad as to make this appear like a comet, the one in 6, a tiny streak nearly tangent to the diffuse distad end of the much larger subcostal spot; cilia alternate white and brown.

Upperside of hindwing: Ground color as in forewing; white submarginal band of much larger white spots than in forewing, that at tornal area large in the holotype and a mere streak in another male, the rest gradually enlarging toward costal area; margin with larger interneural white spots than in forewing, outline, entire, curving mildly.

Undersid of forewing: Color is lighter than in upperside; spots as in upperside, the two in 6 are less connected than in uppersdie, that in 5 appears alone, its companion spot in the upperside is obsolete although there is a nebulous greyish-brown flush to mildly suggest it; costal part of apex with fine whitish lilac streaks which are also present on the basal part of the costa; margin as in upperside.

Underside of hindwing: Color as in forewing; spots smaller than those of upperside; space between band and margin with scattered fine whitish-lilac streaks; a vivid round bluish-white spot in 6 midway between base and apex.

Length of forewing: 43 mm.

Female: Antenna brown; head and body light greyish brown.

Upperside of forewing: Light orangish-brown in ground color, margin as in male; submarginal white band as in male, each of the lower spots in 3, 2 and 1b joined to long white streaks running basally, that in 1b reaching the base; cell with similar, slightly broader streak, which is continued outside by a distally diffuse and produced one; two subcostal-subapical distally diffuse white spots as in male, the upper one larger; cilia as in male.

Upperside of hindwing: Color as in forewing; submarginal band as in male, its spots resembling teardrops, and each joined to vivid white streaks running basad, the whole affair appearing like radiate series of rockets in the sky; fringe as in male with larger white spots.

Underside of forewing: Ground color slightly lighter than in upperside; markings as in upperside, the lilac streaks as in male.

Underside of hindwing: Color as in forewing; markings as in upperside, but smaller, the streaks between bands and margin larger and more numerous than those on forewing; margin as in male; spot in 6 as in male.

Length of forewing: 43 mm.

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Holotype: ♂, Valencia, Negros Oriental, July, 1970, Mathews Sanson leg. Paratypes: 1♂ 2♀♀, Same date as the holotype.

Holotype and one paratype are in the Jumalon family collection. Two paratypes, male and female, are in the University of San Carlos collection.

Named in honor of Mathews Sanson, an avid student of life histories of butterflies, and most valuable collaborator in hunting host plants and immatures.

This satyrid, compared to Seitz's oriental forms has nothing similar in the forms presented from the Philippines. The female has a resemblance to *kamarina* Fruhstorfer of Battu and Sumatra in the forewing's upperside, as well as to male and female of *hypereides* Linné of North Borneo, in both wings. Differs from the females of *kamarina* and *hypereides* by its finer streaks and absence of white spots and lines on the costal margin, and absence of orange spots on the forewing's apex. The margins of the Indonesian forms are well undulated and toothed, that of both sexes of the new one are gracefully curved and almost nearly entire save those of the forewings which are mildly undulate.

## Family Nymphalidae

### Genus ***Neptis*** Fabricius

Eliot (1969) has rearranged the various component of the *vikasi* group, and elevated the Philippine *vibusa* Semper to specific rank. The Philippines is represented by Mindanao's *vibusa* and Palawan's *palawanicus* Staudinger. Neither are illustrated, hence unknown to the author in appearance. In this author's collection are six specimens from Cebu which are considered by Eliot as new subspecies. He examined the first specimen taken by the author nine years ago. Since then, several new specimens have been added. There are two others,one from Agusan, Mindanao, which should be the *vibusa* whose type locality (Sibulan, Davao) is close to Agusan, and the other from Mindoro. Both are close to each other, but differ from Cebu's form by the latter's characteristic white markings. Eliot has stated that this "deserves a subspecific name."

***Neptis vibusa elioti*** subsp. nov. (Figs. 6, 7)

Male: Antennae blackish-brown; underside of club reddish; head and body blackish-brown; margin subcrenate; wing strongly triangular, apex rounded.

Upperside of forewing: Ground color blackish-brown; postmedian band with three white spots, two subapical not wedge-shaped like *ilira* Kheil, the third in cellule 2 paired with a small, light brown, anterior spot, which in one female is whitened by some white scales; in the Agusan male these spots are smaller and light brown; in the single Mindoro male, slightly clearer; a broken, narrow, white submarginal line with only the streaks in 2, 5 and 6 very clear; cell streak and streak beyond cell, violaceous brown, thinner but clearer than *ilira*, the latter being similar to the Agusan and Mindoro examples; apex infuscated; the remaining distal area is divided into bands by an indistinct second, finer, light brown lunular line, the marginal half, wider.

Upperside of hindwing: Ground color as in forewing; margin subcrenate; costa, base to subapical area broadly silky greyish-brown; fine subdiscal band distinctly whitish and sharp compared to Mindanao's and Mindoro's wide, diffuse, brown bands that recalls *ilira*'s male; remaining distal area divided into four bands by lighter, violaceous brown bands, the postdiscal by a broad, diffuse orangish-brown continuous band, the submarginal by a much finer continous line.

Underside of forewing: Ground color lighter greyish-brown with lilac tinge; white postdiscal spots larger, more rounded with brownish tinge; cell streak and beyond that as upperside, thicker; at apex and a little above the middle of distal margin, pale brown-violet quadrate spots checkered by crossing vein and fine band lines; submarginal lunular line wider, more distinct than upperside, its component spots with violet tinge, bordered distad by a narrow but clear dark brown band, and basad by a thicker brown crenated lunules which in turn is bordered basad by light brown streaks; fringe alternate white and brown, that at apex, prominent and white on both sides of wing; dorsum broadly silky or aquaeous greyish-brown.

Underside of hindwing: Ground color as in forewing; submarginal band broader and whiter than upperside with distad dark brown border; postdiscal wider and with central violaceous-brown, diffuse lunular band; between the light bands, a dark brown discal band; the remaining marginal area divided by a narrow light brown submarginal line; interneural marginal depressions with white fringe.

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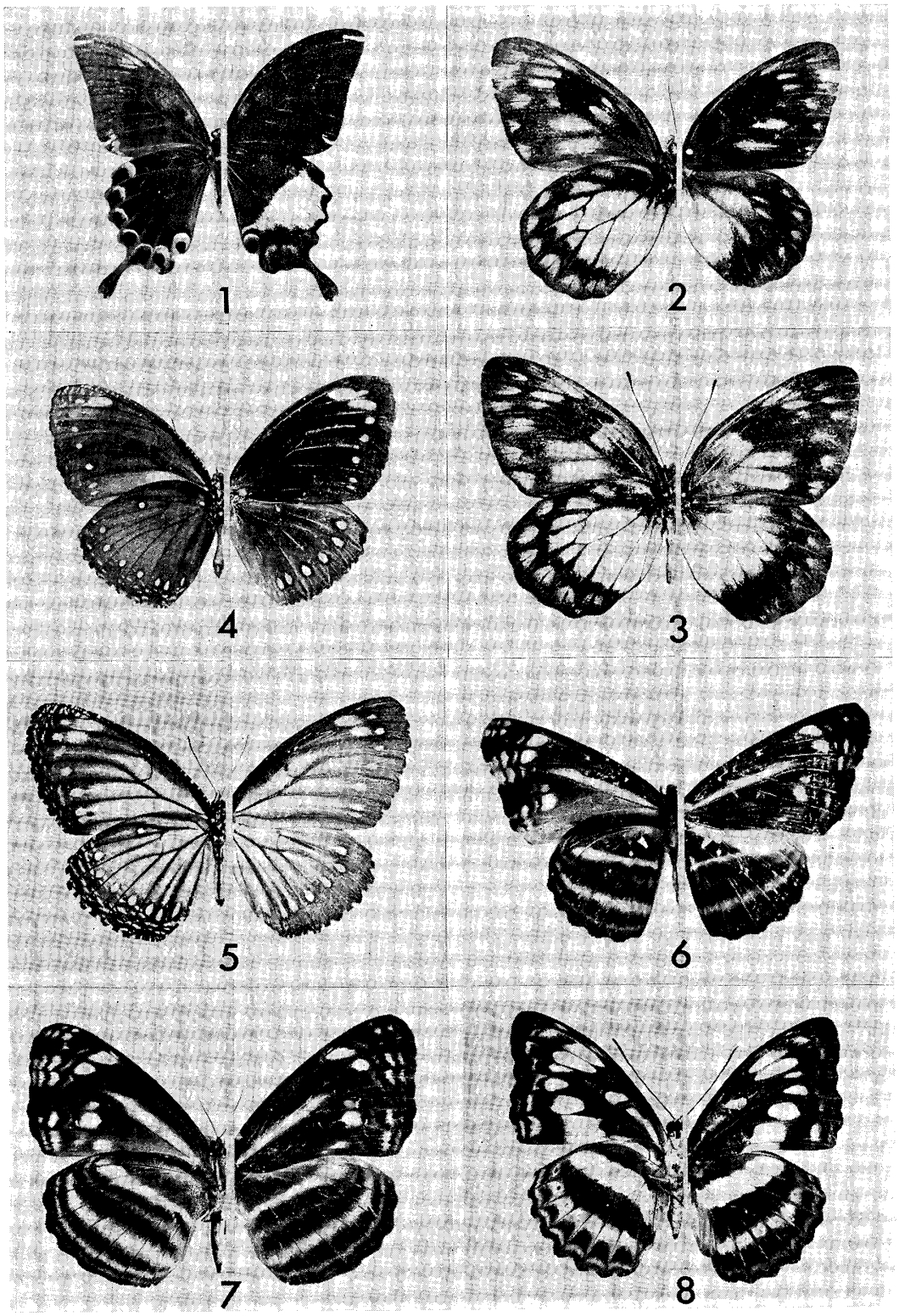


Fig. 1. *Papilio karana irauana* Jumalon (Holotype, ♂).
Fig. 2. *Delias blanca capcoi* Jumalon (Holotype, ♂).
Fig. 3. *Delias blanca uichancoi* Jumalon (Holotype, ♀).
Fig. 4. *Elymnias sansoni* Jumalon (Holotype, ♂).
Fig. 5. *Elymnias sansoni* Jumalon (Paratype, ♀).
Fig. 6. *Neptis vibusa elioti* Jumalon (Holotype, ♂).
Fig. 7. *Neptis vibusa elioti* Jumalon (Paratype, ♀).
Fig. 8. *Pantoporia asura aei* Jumalon (Holotype, ♀).

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Length of forewing: 27 mm.

Female: Antenna, head and body as in male; more rounded undulate margin.

Upperside of forewing: Color blackish-brown; white markings as in male, slightly larger; submarginal white band broken as in male, but a little stronger near tornus.

Upperside of hindwing: Color as in male; margin crenate; subdiscal band stronger and whiter than male, wider and diffuse costad.

Underside of forewing: Color as in male; white postdiscal spots larger than those of upperside, with lilac tinge; four of the spots composing the band larger and clear; submarginal band stronger than that of upperside.

Underside of hindwing: Color as in forewing; subdiscal and postdiscal light bands thicker and more diffuse; other markings as in upperside.

Length of forewing: 29 mm.

Holotype: ♂ Camp 7, Minglanilla, Cebu, June 25, 1965, J.N. Jumalon leg. Paratypes: 1♀, Camp 7, Minglanilla, Cebu, March 10, 1964, J.N. Jumalon leg.; 1♂, Mt. Manunggal, Balamban, Cebu, January 1964, J.N. Jumalon leg.; 1♀, same locality, March 10, 1964, J.N. Jumalon leg.

Holotype and one paratype are in the University of San Carlos collection. Two partypes are in the Jumalon family collection.

Named in honor of Col. J.N. Eliot whose great contribution to Lepidopterology is well known all over the world.

## Genus ***Pantoporia*** Hübner

Fruhstorfer (in Seitz, 1927) commented on Palawan having nine species, several of which are endemic. He noted possitively excellent topographic conditions for the development of the genus especially in Palawan, and of the possibility of discovering new forms in other islands of the archipelago.

Four new forms are presented in this paper, two from Palawan, one from Samar and one from Negros Oriental. The specimen from Samar is an interesting transition of the *gutama* Moore, which, together with a seemingly new form from Cebu, is a new range representing central and eastern Philippines, as predicted by Fruhstorfer. Cebu's single specimen is closer to the Luzon form *gutama*, or Palawan's *teldenya* Fruhstorfer, and although showing a tendency to differ from its congeners, will not be described as a new form. Lately, the *magindana* Semper of Mindanao has been found in Bohol. Similarly, *maenas* Felder of Luzon, Mindanao and Basilan, are presently recorded from Leyte and Samar. Thus, fifteen species are now recorded from the Philippines.

### ***Pantoporia asura aei*** subsp. nov. (Fig. 8)

Female: Antennae black, red-tipped above; under red from tip to middle, the rest reddish-brown; head and body brown; a whitish ring at base of abdomen; underside of body from palpi to tip of abdomen whitish.

Upperside of forewing: Color coffee brown; margin subcrenate, slightly concave at the middle of termen and produced in vein 2; discal band of large white spots continuous, the subcostal pair longest, oblong and nearly of equal size, the upper one diffuse distad; the nex two in 3 and 4 smallest in the group, that in 2 large and oval, and in 1b, large and quadrate, separated from the continuation on the dorsum by fine vein line; that in 4 is generally absent in other forms; cell streak divided into two parts, that at apex suboval, the lower one less clear than that in *battakana* Fruhstorfer; a less definable submarginal band whitish near tornus and brownish upwards to the apical area, that in 6 paired to a white spot; the remaining marginal area divided at the middle by a feint light brown line.

Upperside of hindwing: Ground color as in forewing; margin crenate; a broad white subbasal band of uniform width, the tornal end bluish tinged; band not reaching the margin of termen; postdiscal band, half the width of postbasal, consisting of nearly quadrate, violet-tinged white spots, each centered with diffuse roundish brown spot, which according to Fruhstorfer, distinguishes the *asura* Moore from all other *athymidi*. The margin with light orange-brown lunular band interestingly parallel with the marginal brown border of equal width.

Underside of forewing: Ground color rich reddish-brown; the white spots larger than those of upperside, with lilac tinge; cell spots larger, whiter, the apical one margined distal and basad with blackish-brown lines, the lower one has its apex cupped with black line; submarginal band clearer, whitish with lilac tinge and broken into interneural spots bordered with dark brown lines basad, and reddish-brown lunules distad, the latter also bordered distad with whitish-orange line, that at the tornus white.

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Underside of hindwing: Color as in forewing; a basal white streak curves up on the costa; subbasal band as in upperside, with lilac tinge, more extended and curves gracefully down into the dorsum; postdiscal band wider, clearer, the central brown dots apparent only on the upper sections near costa more violaceous, basad to which are blackish, diffuse bars, not touching postbasal band; submarginal lunular band more brownish than in postdiscal; fringe alternate brown and lilac.

Length of forewing: 41 mm.

Male: Unknown.

Holotype: ♀, Irauan, Puerto Princesa, Palawan, September 6, 1969, J.N. Jumalon leg. Paratype: 1♀, Same data as the holotype.

Holotype is deposited at the University of San Carlos collection. Paratype is in Nanzan University.

Named in honor of Dr. Shigeru Albert Ae of Nanzan University, Nagoya, for his distinguished contribution to genetic work in butterflies and active part in popularizing lepidopterology in Japan and the orient.

***Pantoporia gutama samarensis*** subsp. nov. (Fig. 9)

Male: Antennae black; head and body blackish-brown with reddish tinge; abdomen yellowish-brown ventrally.

Upperside of forewing: Ground color blackish-brown; margin subcrenate; cell streak unbroken, brownish-orange; white spots of discal band much smaller than those of *teldenya* and *gutama*, the subcostal set of three spots have the upper two ovate area and are of equal size, the third a mere dot; the lower set has the upper one very large and nearly round, the lower one on the dorsum much narrower than those of its congeners and fringed distally with brown-orange; submarginal area is divided into two bands by greyish-brown, much narrower and lighter band than in the other forms; apical area with three brownish-white streaks which seem to repersent a whitish submarginal band whose continuation near the dorsum is indicated by two orange-brown streaks.

Upperside of hindwing: Color as in forewing; margin crenate; subbasal white band with yellowish tinge, very narrow or about one-third the width of that of the two known forms, basally sharp in outline, distally diffuse and bordered distad with orange-brown; between postbasal band and margin, the area is divided into four ground color bands, by three narrower brownish-orange lines, the two resulting discal area bands are broader than in the submarginal and marginal bands, the dividing line of the latter bands just a thin line; fringe is alternate white and brown.

Underside of forewing: Ground color as in upperside; discal spots slightly expanded; streak in cell whitish with lilac tinge; termen with two broken bands of brownish-white spots which divide it into submarginal and marginal dark bands of about equal width; an incomplete postdiscal brown-orange band, emphasized near the large lower white discal spot from where it is continued down on the hindwing by unbroken discal lunular line; veins are brownish-orange.

Underside of hindwing: Ground color as in rorewing; whole area divided into five ground color bands by five white and orange-brown parallel bands, the poatbasal discal bands broad and of about equal width, the discal two with diffuse margins; the submarginal and marginal bands, narrower and of about equal width; the lighter dividing bands are: basal, brownish-white, subbasal, white and broader, discal, narrower and brownish-orange, submarginal, white with violet tinge and divided by fine vein lines, and disconnected near costa; the admarginal, brownish-white upper half and more brownish lower half, narrower than in others and broken on its upper part.

Length of forewing: 29 mm.

Female: Unknown.

Holotype: ♂, Sohoton, Basey, Samar, May 19, 1967, Osman Jumalon leg.

Holotype is in the University of San Carlos collection.

Named after the type-locality.

***Pantoporia larymna shirozui*** subsp. nov. (Figs. 10, 11)

Male: Antennae, head and body brownish-black; a blue collar behind the head and a broad white ring, dusted blue, between thorax and base of abdomen.

Upperside of forewing: Ground color brownish-black; postdiscal band yellowish-white, not continuous, the ovoid pair at costal area tangent, the lower one larger; the lower part of the band has the upper spot suboval and well separated from the rest on the dorsum; the anterior one of which is not near quadrate like that in *larymna*; cell

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streak divided into three parts; unlike *agina* the white streak above cell is triangular, sharp-pointed as in the pictured underside of *elisa* Fruhstorfer; apical area with three tiny white streaks, and a small roundish spot in 4. Margin subcrenate.

Upperside of hindwing: Color as in forewing; margin more crenate than forewing; subdiscal yellowish-white band continuous except near costa where in 7, the entervening vein 7 separates the band's end in a roundish spot; a postdiscal yelloish-white narrow lunular band, the upper end not reaching the costa; a submarginal violaceous-brown band lighter than ground color.

Underside of forewing: Ground color pale light brown with lilac tinge; white spots as upperside, slightly expanded, generally with diffuse distad ends; the streak outside cell has the costal end jointed to a subcostal streak of similar color; scattered around are interneural dark brown streaks, interplaying with the white spots; two quadrate white spots, tinged violet, on the margin, one in 4, the second in 1b, both bisected by fine brown admarginal lines, basad to which is another brown submarginal line.

Underside of hindwing: Ground color as in forewing; the white bands lilac-tinged; submarginal band lighter than in upperside and as broad, distad to which on the margin, is a streak of similar color; a discal brown band parallel to the white bands tapering and blurred in 1b and broader in 5, ending in 6 and slightly tapering; behind the base a yellowish-white streak curves upward on the costa ending on the costal end of the subdiscal band.

Length of forewing: 38 mm.

Female: Color of light chocolate-brown, and the markings of botk wings and both sides as in male, slightly larger. The specimens were taken ten years apart. The female has considerably lost its blackish color.

Holotype: ♂, Irauan, Puerto Princesa, Palawan, September 6, 1969, J.N. Jumalon leg. Paratype: 1♀, Irauan, Puerto Princesa, Palawan, May 11, 1959, J.N. Jumalon leg.

Type-series is kept in the University of San Carlos collection.

Named in honor of Dr. Takashi Shirôzu, one of Japanese eminent Lepidopterists whose great contribution to lepidopterology is an inspiration to all Asian entomologists, and the whole world.

The species *larymna* Boisduval is represented by *agina* Fruhstorfer in Paiawan. Its distinguishing mark is the white spot above the cell which is quadrate. A second Palawan form has been found by the author in which this spot is triangular.

***Pantoporia pravara baltazarae*** subsp. nov. (Fig. 12)

Male: Antennae head and body black; pronotum brownish-white, and a similar white in broad ring between thorax and base of abdomen.

Upperside of forewing: Ground color brownish-black; cell streak single, club-like as in *esra* Fruhstorfer, and unlike Palawan's *salvini* Fruhstorfer which Fruhstorder described as a minute, comma-like streak; median white band not continuous, the three upper spots near costa equidistant from each other, unlike *esra* in which the upper two are fused; the first two oblong, the third roundish; lower spot has the anterior one elliptical, the second suboval and which basal corner is produced like a plowpoint; a subcostal line of small white interneural streaks; streaks in 3 diverging from its course basad; remaining distal area bisected by a narrow band of lighter brown than in the ground color.

Upperside of hindwing: Ground color as in forewing; margin subcrenate; white subbasal band broad, slightly wider basad, narrower at costa; white postdiscal lunular band narrow, separated into interneural parts by vein lines, graduated in size, largest near termen, that near costa a mere dot; submarginal light orange-brown band as wide as postdiscal, both ends touching margins of costa and termen.

Underside of forewing: Ground color lighter than that of upperside; all white marks slightly expanded in size; cell streak wider, carries a white "eyebrow" on its apex; the submarginal narrow brown band lighter than in upperside.

Underside of hindwing: Ground color as in forewing; postbasal band wider than in upperside; postdiscal band twice wider than in upperside; submarginal band as broad as upperside, lighter with violet tinge; between postbasal and postdiscal bands a narrow median line of diffuse brown spots; basad to submarginal band is a well diffused brown band; fringe alternate white and brown.

Length of forewing: 31 mm.

Female: Unknown.

Holotype: ♂, Amlan, Negros Oriental December 30, 1970, J.N. Jumalon leg.

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Type is deposited in the University of San Carlos.

Named in honor of Dr. Clare Baltazar, an active prolific contributor to Philippine entomology.

## Genus ***Euthalia*** Hubner

Seitz (1927) has described the female of *Euthalia adonia princesa* Fruhstorfer of Palawan. This author has a fresh and perfect specimen from central Palawan which perfectly fits said description. However, at the Senckenberg Museum, Frankfurt, there is a female from Palawan labeled *princesa*, the arrangement of whose white and red markings are those of the *lubentina* group. This author collected three females and one male in the same locality in 1969. After study and comparison with the author's own collection, he has decided to maintain the position of *Euthalia adonia princesa* of Fruhstorfer, and assign the "*princesa*" at the Seneckenberg to the *amanda* group, and describes two new forms from Central Philippines. Thus, Seitz's three continental and insular species shall now all be represented in the Philippines.

All these specimens were taken in well forested areas, mostly at elevations exceeding 1,000 feet. Wary of approach, they may be taken while perching atop the leaves of low shrub-trees or along sunlit patches of moist forest trails.

### ***Euthalia amanda irauana*** subsp. nov. (Figs. 13, 14)

Female: Antennae dark brown; head and body same color.

Upperside of forewing: Color flourescent greenish-brown; cell with broad wavy white spot margined black basad and distad, and two black stripes basad of white spot; discal white band very broad, consisting of six white spots, that in 2 largest, subquadrate, produced distad and slightly basad, the last two long and narrow; subquadrate, that in 3 and 4 triangular, the last two long and narrow; subapical four white spots confluent with the subapical end of the submarginal black, diffuse band; margin with an indefinite, considerably diffuse black band; margin undulate; discal band and subapical spots are jointed by black stripes except the tiny streak on costa.

Upperside of hindwing: Ground color as in forewing; a postdiscal black-bordered red band uniformly broad compared to the irregular band of *amanda* Hew.; a submarginal band of distanced roundish black spots, the lower spot and the upper three paired each to basad red spot, the upper three vivid; basad to the postdiscal band a "v"-shaped black stripe which is wanting in *amanda* but present in *nadenya* Fruhstorfer.

Underside of forewing: Color lighter than in upperside and with reddish tinge; vivid black cell stripes, and the black-margined white spot sandwitched between red spots; the discal band as in upperside; subapical white spots as in upperside, the black stripe joining the two groups of white spots reduced to two and colored blackish-brown; submarginal black lunular band as in upperside. The lower end with whtish-brown patch distad; the space between black submarginal band and marginal blurred border is slightly lighter than in ground color giving it the appearance of a blurred light band.

Underside of hindwing: Color as in forewing but lighter and more greenish on the dorso-tornal area; the red postidiscal band much paler; submarginal black band with much smaller spots with the tornal red spot almost obsolete; black margined red postbasal spots as in other forms in the Philippines.

Length of forewing: 35—38 mm.

Male: Antennae, head and body greenish-brown.

Upperside of forewing: Ground color as in female; white spots absent; black streaks in cell; submarginal lunular black band with blurred spots and nearly obsolete near apex.

Upperside of hindwing: Ground color as in forewing; two rows of roundish red spots close to costa, one discal, the other submarginal, the latter continued down toward the tornus by black ellipse spots, the last one of which is jointed to a red tornal spot.

Underside of forewing: Ground color light copper-brown; two quadrate black-bordered red spots in cell; about one half of margin with three black submarginal lunules; median area with black streaks.

Underside of hindwing: Color as in forewing; red spots as in upperside, less vivid; the three subcostal red spots are continued down by four much smaller black spots than those of upperside, except the larger tornal one which is jointed to a red spot; the characteristic red basal spots present, pale.

Length of forewing: 28 mm.

Holotype: ♀, Irauan, Puerto Princesa, Palawan, August 7, 1969, J.N. Jumalon leg. Paratypes: 1♂1♀, same locality, July 27, 1969, J.N. Jumalon leg.

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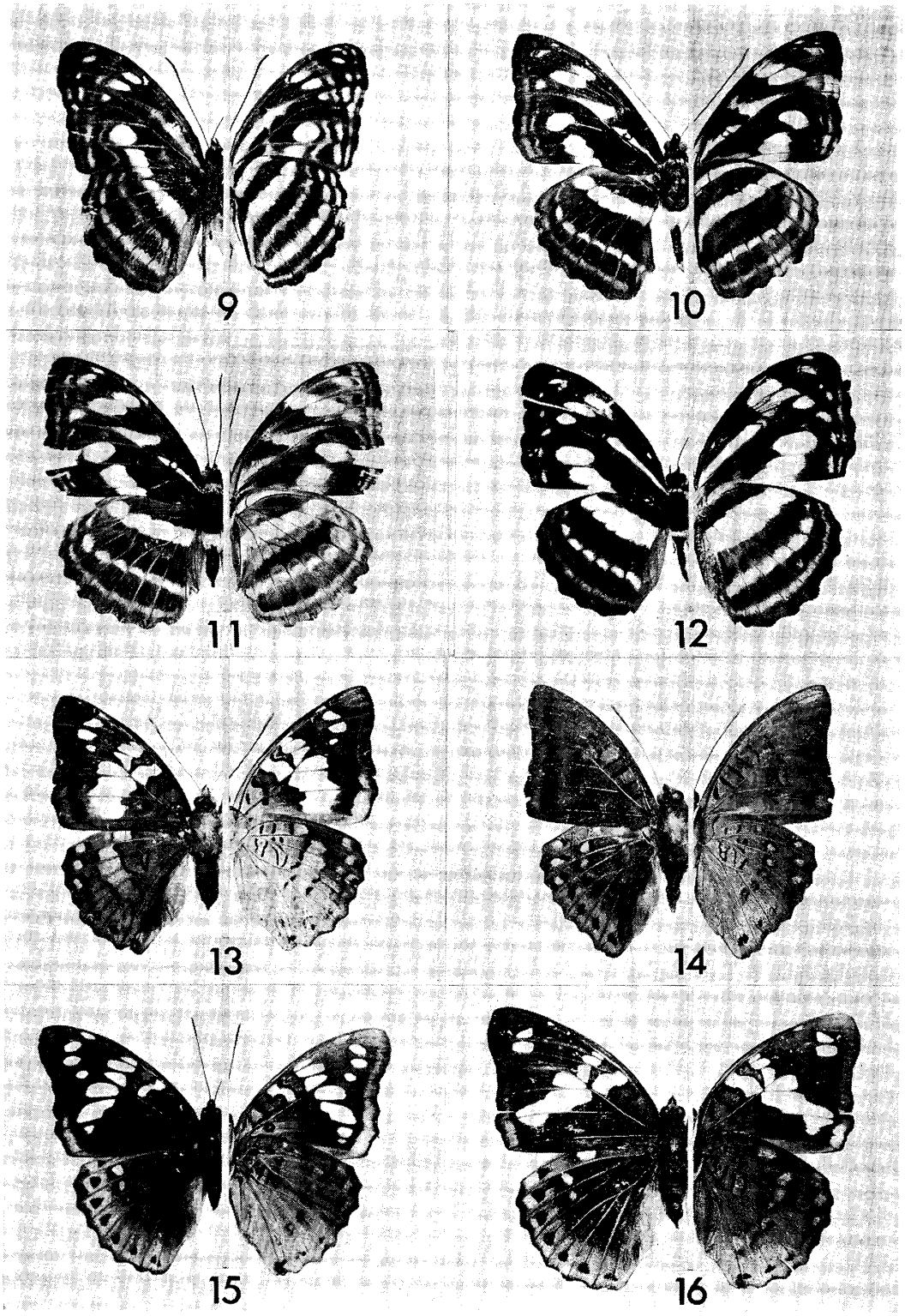


Fig. 9. *Pantoporia gutama samarensis* Jumalon (Holotype, ♂).
Fig. 10. *Pantoporia larymna shirozui* Jumalon (Holotype, ♂).
Fig. 11. *Pantoporia larymna shirozui* Jumalon (Paratype, ♀).
Fig. 12. *Pantoporia pravara baltazarae* Jumalon (Holotype, ♂).
Fig. 13. *Euthalia amanda irauana* Jumalon (Holotype, ♀).
Fig. 14. *Euthalia amanda irauana* Jumalon (Paratype, ♂).
Big. 15. *Euthalia lubentina goertzi* Jumalon (Holotype, ♀).
Fig. 16. *Euthalia lubentina leytensis* Jumalon (Holotype, ♀).

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Holotype and one male paratype are deposited in the Jumalon family collection. One female paratype is deposited in the University of San Carlos collection.

This bears name of very rich collecting ground.

***Euthalia lubentina goertzi*** subsp. nov. (Fig. 15)

Female: Antennae black; head and body dark brown.

Upperside of forewing: Ground color as in all other *lubentina* forms; discal band with six white spots, unlike the seven of other *nadenya* forms, and these are arranged in a rather orderly manner forming a more or less straight row; the black-bordered white cell spot half as wide as those of *nadenya* Fruhstorfer of *leytensis* Jumalon and much separated from the discal band; a red stripe in cell, and two black stripes basad to it; between white cell spot and postdiscal white band a red spot between two black stripes; four subapical spots large, nearly of uniform size, while in *nadenya* the first and fourth are mere tiny dots; submarginal black band diffuse basad; the marginal glaucous band as in *nadenya*, diffuse basad; between marginal and submarginal bands a light greyish-brown area which fades in 4 or 5.

Upperside of hindwing: Ground color as in *nadenya* or *leytensis*; black submarginal spots with the upper three tangent to three red spots; postdiscal black band has the upper three black spots red-centered; small tornal red spot.

Underside of forewing: Ground color chocolate brown with reddish tinge; white spots as in upperside, slightly expanded; discal band with a seventh small oval subtornal spot; the red cell spot is less quadrate than in *nadenya* or *leytensis*, the anterior one twice wider than corresponding spots in either congener; the marginal band with wider whitish area running from the tornus to the third of the termen with blue infuscation, while in *nadenya*, *leytensis* and *irauana* Jumalon, it is reduced to a mere couple of fused blurred white spots.

Underside of hindwing: Ground color lighter than in forewing with much more reddish tinge; red spots replaces black in postdiscal band, each with thin black margins basad and distad; submarginal band, unlike upperside, is reduced to tiny diffuse blackish-brown spots, the apical three tangent to three large distad red spots; tornal red spot much larger than in upperside; subbasal red spot as in other *nadenya* forms, with their complements of stripes.

Length of forewing: 41 mm.

Male: Unknown.

Holotype: ♀, Amlan, Negros Oriental, December 29, 1959, Ariel A. Jumalon leg.

Holotype is kept in the University of San Carlos collection.

Named in honor of Rev. Fr. Joseph Goertz, SVD, Director of Research and Scholarships of the University. Progress in scientific research through many scholarships enjoyed by faculty and students has been largely through his able management of the Research Department.

***Euthalia lubentina leytensis*** subsp. nov. (Fig. 16)

Female: Antennae missing. Head and body coffee brown.

Upperside of forewing: Ground color brown with greenish sheen; position and number of white spots in the discal band recalls Luzon's *nadenya* Fruhstorfer, except that in the present form the seventh spot pointing to tornus is four times larger than corresponding spot in *nadenya*; unlike the latter, there are only three subapical spots; the red cellular spot nearly obsolete, unlike *nadenya*, which is clear; a greenish-grey submarginal band as in *nadenya*.

Upperside of hindwing: Color as in forewing; marginal area with luminous copper-green band; submarginal band of black spots recalling *nadenya*, the upper three joined to distad red spots; postdiscal black band much faded in 2, 1b and 1a, the upper three centered with red spots, that on costa much drawn basally, and is one red spot less than *nadenya*; tornal red spot small.

Underside of forewing: Ground color light copper brown, the white markings as in upperside, each spot slightly expanded; an additional greyish-white tornal spot; the area surrounding the three large white discal spots, infuscated; the red cellular spots vivid; a round black subbasal spot in 1a.

Underside of hindwing: Color light copper brown and greenish in tornal area and lower half of distal margin; behind base a red streak runs over costal margin reaching the apex; postdiscal black-margined red spots with the much basad one on costa largest and distanced from the second largest in 6; srbmarginal black lunular band has the upper three on apical area edged distally with large red spots; the tornal end of band also with red spot; ab-

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dominal margin of dorsum with red line; basal group of red spots each with black margins distad and basad; subcrenate margin with white and black fringe.

Length of forewing: 37 mm.

Male: Unknown.

Bohol's female is almost identical with the holotype save for the three white spots near costa anterior to cell spot, which are very much reduced in size in Bohol's female. Perhaps these are variable. Underside of hindwing, the red spots of *leytensis*'s discal band are nearly twice in size than those of Bohol's female.

Holotype: ♀, Lake Danao, Ormoc City, Leyte, May, 1957, J.N. Jumalon leg.

Holotype is deposited in the University of San Carlos collection.

## Genus ***Tanaecia*** Butler

Seitz (1927) presented two groups of Philippine *Tanaecia,* both banded forms. *Tanaecia calliphorus* Felder is confined to northern Philippines and is characterized by an emerald green band. *T. leucotaenia* Semper is confined to central and southern Philippines, and has white bands. Mindanao's form, however, is separated from *leucotaenia* as subspecies *aquamarina* Fruhstorfer, though appearing very similar to it.

A third group is presented in this paper as new species. Instead of bands, the two new species have on their forewings distinct white spots, the maximum of which is attained in the Negros species. This is a novel feature and is a departure from the familiar banded forms. The Cebu form is an average sized nymphalid. The Negros form is nearly twice as large. Both butterflies were sent to Mr. T.G. Howarth of the British Museum, and in his opinion, both are new species.

### ***Tanaecia howarthi*** sp. nov. (Figs. 17, 18)

Male: Antennae brownish-black; head and body brown.

Upperside of forewing: Fresh specimen blackish-brown, old ones brown; margin undulate, well exacvated near margin's center, compared to *susoni* Jumalon which is nearly straight; cell with four black streaks, and at its apex, a broader black streak; between the cell's and wing's apices a large white subapical spot divided into four sections by black neural lines, the middle two very large and long, the one on the costa a mere triangular streak, the fourth below a little larger; this is a most conspicuous feature distinguishing this nymphalid from any of its congeners in the Islands; there are blurred black bands, one discal curving basad, the other postdiscal, straighter, both their upper ends serving as basad and distad borders of the white spot, and their lower ends fusing into a large, blurred roundish spot in 1b; a submarginal black band of larger interneural diffuse spots is confluent above with the postdiscal band thus strengthening the distad border of the white spot, just as the basad one is broadened by its fusion with the streak beyond the cell's apex; a marginal band slightly less dark than in submarginal band well diffused basad as to make it less distinguishable; outside the cell, subbasal black streaks appearing in alignment with the cell streaks.

Upperside of hindwing: Ground color as in forewing; margin undulate, well rounded; subbasal black streaks fine; a blurred black postidiscal band with ends not reaching costa and dorsum, extensively diffused basad making the discal area infuscate; submarginal band of blurred roundish black spots narrower than its counterpart of forewing; between postdiscal and submarginal bands the space is of lighter reddish-brown, constituting a broad postdiscal band; infuscation of the margin not as heavy as forewing; the abdominal fold is violaceous reddish-brown.

Underside of forewing: Ground color light greyish-olive green; the white spot tinged greenish, less bolder than in upperside whose background is very dark; cell streak finer than in upperside, including streak at cell's apex; discal band broad, consisting of large black spots, the three serving as border of the white spot smaller than that of the much larger three in 3, 2 and 1b, those in 3 and 1b roundish, the middle one an arc, all three diffuse distally, only the one in 1b basally; a bold submarginal black band with graduated spots, those in 1b, 2 and 3 subquadrate and largest, the last one on the costa a mere fine streak, and all the larger ones diffuse basad and distad; subbasal streaks outside cell very fine, the basad one almost obsolete; fringe black; veins yellowish.

Underside of hindwing: Ground color as in forewing; postdiscal black lunular band composed of vivid, lunulate spots, the last one on costa reduced to a small blurred spot, the lower and last on the dorsum, a mere tiny streak; a vivid black submarginal band of well distanced, more or less, quadrate spots, except the last on the tornus, which is a long bar; subbasal streaks very fine, confluent to which are irregular black streaks forming a short subdiscal band; fringe black.

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Length of forewing: 43 mm.

Female: Antennae, head and body as in male.

Forewing and hindwing are similar to male on the upperside.

Underside of forewing: Color as in male; spots in the postdiscal and submarginal bands larger than those of male, and the light area between these bands, is much lighter than in the ground color, forming a vivid band with the broad whitish sunapical spot serving as the upper end of this band.

Underside of hindwing: Color as in forewing; the postdiscal band has all the blackish-brown interneural spots "v"-shaped and very clear, but in another female all these spots are blurred and very feint near dorsum; the submarginal band is a continuous greyish-green broad line centered with brownish-black spots in the interneural sections, but in one female, these spots are recognizable only in 5, 6 and 7; the space between the bands as in the forewing, is lighter, presenting a continuation of the forewing's similar band.

Length of forewing: 49 mm.

Holotype: ♂, Amlan, Negros Oriental, July 18, 1970, J.N. Jumalon leg. Paratypes: 1♀, Amlan, Negros Oriental, July 18, 1970, J.N. Jumalon leg.; 2♀♀, ditto, December 29, 1959, Ariel Jumalon leg.; 1♀, ditto, December 29, 1959, Rev. E. Schoenig, SVD leg.

Holotype and two paratypes are deposited in the University of San Carlos. Two female paratypes are deposited in the Jumalon family collection.

Named in honor of Mr. T.G. Howarth, Curator of British Museum (Nat. Hist.) for his great contribution to lepidoptetorology and indefatigable devotion to butterfly study and endless assistance to both professional and amateur students of butterflies.

***Tanaecia susoni*** sp. nov. (Fig. 19)

Male: Head and body brown on the upperside and the underside; antennae greyish olive green.

Upperside of forewing: Ground color dark reddish-brown; margin subcrenate; cell with four black streaks; a blurred brownish-black discal band of dark interneural brown spots of irregular shapes, the largest three are in cellule 3, 2 and 1b, all well diffused basad, the last one in 5 with anterior bluish-grey subcostal spot; submarginal band of nearly indistinct small dark brown spots from subapical area to subtornal area in 1b; two subapical white spots, basad of submarginal band, the one on costa a mere streak, the lower one much larger and subovoid. This distinctly separates this nymphalid from its banded congeners. In some males the tiny streak is nearly obsolete.

Upperside of hindwing: Color as in forewing; margin undulate; the postdiscal area with an apparent broad, light brown diffuse band, a suggestive vestigial relic of the typical macular fascia of the ancient parent; submarginal band of well distanced moderately diffuse black spots; between discal area and base, a couple of black oval outlines.

Underside of forewing: Ground color pale or greyish olive-green on the costa-apical area down to middle of termen, blending with pale reddish-brown on the rest of wing area; cell with more vivid black streak; the discal band clearer and with more definite interneural streaks, twice thicker than cell streaks, the lower one in 1b thickened; a submarginal lunular band of graduated diffuse black spots, small at the subapical area and gradually enlarging down to 1b, the last on the tornal area smaller; between discal and submarginal bands is a short postdiscal band of three black lunules;area between discal and submarginal bands from cellule 2 to 1b, of lighter color than in ground color, nearly as light as the subapical spots which has a yellowish tinge, while this area is pinkish; the two curved black streak at cell's apex and the finer ones of the subbasal area outside the cell complete the dark markings of the wing.

Underside of hindwing: Ground color as in forewing; a postdiscal band of black spots, the lowest two lunulate and largest, the smaller two near costa feint; a submarginal band of well distanced oval black spots, the largest two in 1b and 2, the tornal one a mere dot; between the two bands, distad and closer to the postdiscal, are quadrate pink interneural spots, constituting a band which has its origin on the forewing; the black subbasal streaks complete the loosely arranged dark markings.

Average measurement of length of forewing: 24 mm.

Female: Antennae, head and body as in male.

Upperside: Ground color and all markings as in male.

Underside : Color as in male but the postdiscal black band consisting of lunules in the male is feint like the male's two upper lunules near the costa; submarginal band less vivid than male, slightly bigger; pinkish band between postdiscal and submarginal bands stronger on the costal area, the lower portion feint as that of male; basal streaks feinter and finer than in male.

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Length of forewing: 38 mm.

Holotype: ♂, Camp 7, Minglanilla, Cebu, October 5, 1964, J.N. Jumalon leg. Paratypes: same locality as the holotype, 2♂♂ 2♀♀, March 2, 1964, 1♂, March 8, 1964, 3♀♀ June 23, 1965, 1♂, August 22, 1960, 1♂ 2♀♀, October 1, 1964, J.N. Jumalon leg.; 1♀ 1♀, Mt. Manung-gal, Balamban, Cebu, January 23, 1964, April 8, 1962, J.N. Jumalon leg.; 4♂♂, Kantabaco, Toledo, June 24, 1965, May 10, 1965, Silberio Taboada leg.

A good series of males are all collected on Cebu's Central Cordillera where small patches of forests still survive. There is but a slight variability in the markings of their wings especially on the upperside. All specimens were collected throughout the year except in July, September, November and December, but are doubtless present during these months. All were collected at elevations not lower than 1,000 feet. Cebu's highest mountain is only a little over 3,000 feet.

Holotype and nine paratypes are deposited at the Department of Bioloty, University of San Carlos, Cebu City. Eight paratypes are deposited in the Jumalon family collection.

Named in honor of Faustino M. Suson, Cebu's second oldest collector. For twenty five years he has continually helped the author with valuable references. His collection was destroyed during the war.

## Genus ***Cyrestis*** Boisduval

In discussing the genus *Cyrestis*, Fruhstorfer (in Seitz, 1927) considered the narrow or broad bands running parallel to the body as the most striking and principal markings of the genus. Between the base and the broad distal band of the forewing are three distinct bands which he divided into Lower or First Meridional, Middle or Second Meridional, and Upper or Third Meridional. Using these as basis of differentiation is indeed useful in distinguishing the differences between forms.

In species *maenalis*, which is well distributed in the Islands, he introduced six subspecies, namely: *maenalis* Erichson of Luzon, *rothschildi* Martin of Mindoro, *negros* Martin of Negors, *oebasius* Fruhstorfer of Basilan, *obscurior* Staudinger of Palawan, and *aiedius* Fruhstorfer of Balabac.

Mindoro's *rothschildi* is the darkest in the group. The specimens in this author's collection appear even darker than Borneo's *seminigra*. In this author's opinion, it deserves the name *obscurior* more than the Palawan form which is as light as the central Philippine form *oebasius* of Cebu, Bohol and Leyte. While there are minor or major differences on the upperside fascia in the known Philippine forms, there is, on the other hand, a remarkable uniformity in their undersides, signifying common anecstry.

In the high altitude of Mindanao, a tendency toward melanism was noted by the author on a forest *Cyrestis*. No explanation will here be given. However, observations in the lowlands reveal that white is worn by man in order to repel the heat of the sun, while black or very dark clothings absorb heat. The simi-temperate climate at elevated forests, if at all, may have caused certain animals to develope dark outer colors, aside from reasons of camouflage.

A very dark and differently striped male forest *Cyrestis* was taken by the author at Inabulan Plateau in southern Davao at about 2,000 feet. A second male was captured during another expedition, this time, to Mt. McKinley, northeast of Mt. Apo, the Philippine highest mountain, at 4,000 feet. In the same expedition, a female was taken at the so-called "foot" of Mt. Apo, with an elevation of 6,500 feet. The most recent finding was a new subspecies of *maenalis*, Zamboanga City.

### ***Cyrestis kudrati*** sp. nov. (Figs. 20, 21)

Male: Antennae, head and body brownish black; thorax and abdomen with dorso-lateral brown line, centrally it is white, like *maenalis* group.

Upperside of forewing: Margin mildly crenate-undulate; ground color light brown when fresh, greyish-brown when several years old; from base to distal margin are ten bands, more or less straight and parallel compared to any of the *maenalis* forms from the Philippines, and with no great discrepancy in their width; the lower and middle meridionals broadest, the rest distad diminishing in width except the marginal one which is twice the width of the admarginal one; the yellow tornal spot as in *maenalis*, with two small black spots; a small light brownish-white subapical spot, and another mid-discal one, presenting the only bright area.

Upperside of hindwing: Ground color as in forewing, and the bands more or less uniform in the width and straighter than those of forewing and remarkably equidistant, a far departure from the general trend in the

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*maenalis* group, the little spaces between them enhancing the melanic or somber aspect of the wing; the margin more strongly undulate than that of forewing; tail on vein 4 as in *maenatis*, the yellow tornal spot not extending half way of the dorsum as in all the forms of *maenalis*, but with the complement of black spots present.

Underside of forewing: Ground color light yellowish-brown; bands as in upperside, with the outer one next to the third meridional abruptly curving basad, almost touching the latter, creating a space in 3 and 4 as in *maenalis* forms, but is here darkened by the crossing fifth band from the lower meridional and the blackened vein 4; the yellow tornal spot as in upperside, with two black spots.

Underside of hindwing: Ground color as in forewing, with the bands thinner than in upperside, making the area of three meridionals appear light; the three bands distad to the third meridional close to each other or nearly fused, the center wider than the other two, and appearing divided into enterneural elliptic spots almost like beads in a rosary; the yellow tornal spot as in upperside.

Length of forewing: 29 mm.

Female: Unknown.

Holotype: ♂, Inabulan Plateau, Southern Davao, Mindanao, May, 1961, J.N. Jumalon leg. Paratype: 1♀, Same data as the holotype.

Type-series is deposited in the Jumalon family collection.

Named in honor of the hero of Moslem Mindanao, Sultan Kudrat.

***Cyrestis maenalis zamboangensis*** subsp. nov. (Fig. 22)

Female: Antennae, head and body black.

Upperside of forewing: Color white with yellowish-brown tinge; the three meridional bands are of greatly different thickness, the central one widest, its margin basally straight, more or less, distally irregular, the basal or lower band one-third of the middle, and the outer or third, a thin strong one that widens costally, fusing, together with the other two with the wide, dark brown costal margin; the bands distad to the meridionals, confluent, with barely distinguishable lines separating them; a quadrate, white discal spot in 3 and 4 larger than those of other *maenalis* forms; the band bordering this spot is not joined to third or upper meridional band by a heavily black-dusted vein as in other *maenalis* forms, thus showing a continous white discal band from vein 7 near midcosta to the dorsum; the yellow tornal spot with the usual two black spots; a white spot anterior to the yellow spot bisected by the band seventh from the base; the sub-apical spots of *maenalis* forms are present.

Upperside of hindwing: Margin subcrenate; color as in forewing; meridional bands are a continuation of those on forewing, and converge in the yellow tornal spot, the middle slightly broader than its origin in the forewing, and is very much broader than the lower and upper ones, a reverse of *maenalis* known forms in which the lower meridional is broader; this stronger aspect on the discal area is never achieved by the other *maenalis* forms in northern and central Philippines. The straighter, cleancut median white band serves to emphasize this quality. The six distal brown bands are very close together though still visibly separated by light brown or whitish interspaces, their lower extremities converging in the yellow tornal spot; these six bands appear split at their center near the apex, creating a more or less triangular subapical whitish bar; the tornal yellow spot shows the usual black spots of other forms.

Underside of forewing: Ground color light brown; the bands and other markings as in upperside, though less dark, and the lower and middle meridionals are narrower than in those of upperside.

Underside of hindwing: Color as in forewing; meridional bands narrower than those of upperside, the space between middle and upper ones wider than in upperside; the white spaces between brown bands wider; basad margin of middle Meridional band not diffuse like upperside; the distad bands as in upperside, more trim, their interspaces more well defined than upperside; the yellow tornal spot as in upperside with only three black spots, the middle one of which is a little above the tornal lobe, and is large and round.

Length of forewing: 31 mm.

Male: Unknown.

Holotype: ♀, Zamboanga City, Mindanao, April, 1973, M. Anobas leg.

Type is kept in the Jumalon family collection.

***Polyura schreiberi bilarensis*** subsp. nov. (Figs. 23, 24)

Female: Antennae black; head and body black with greenish tinge.

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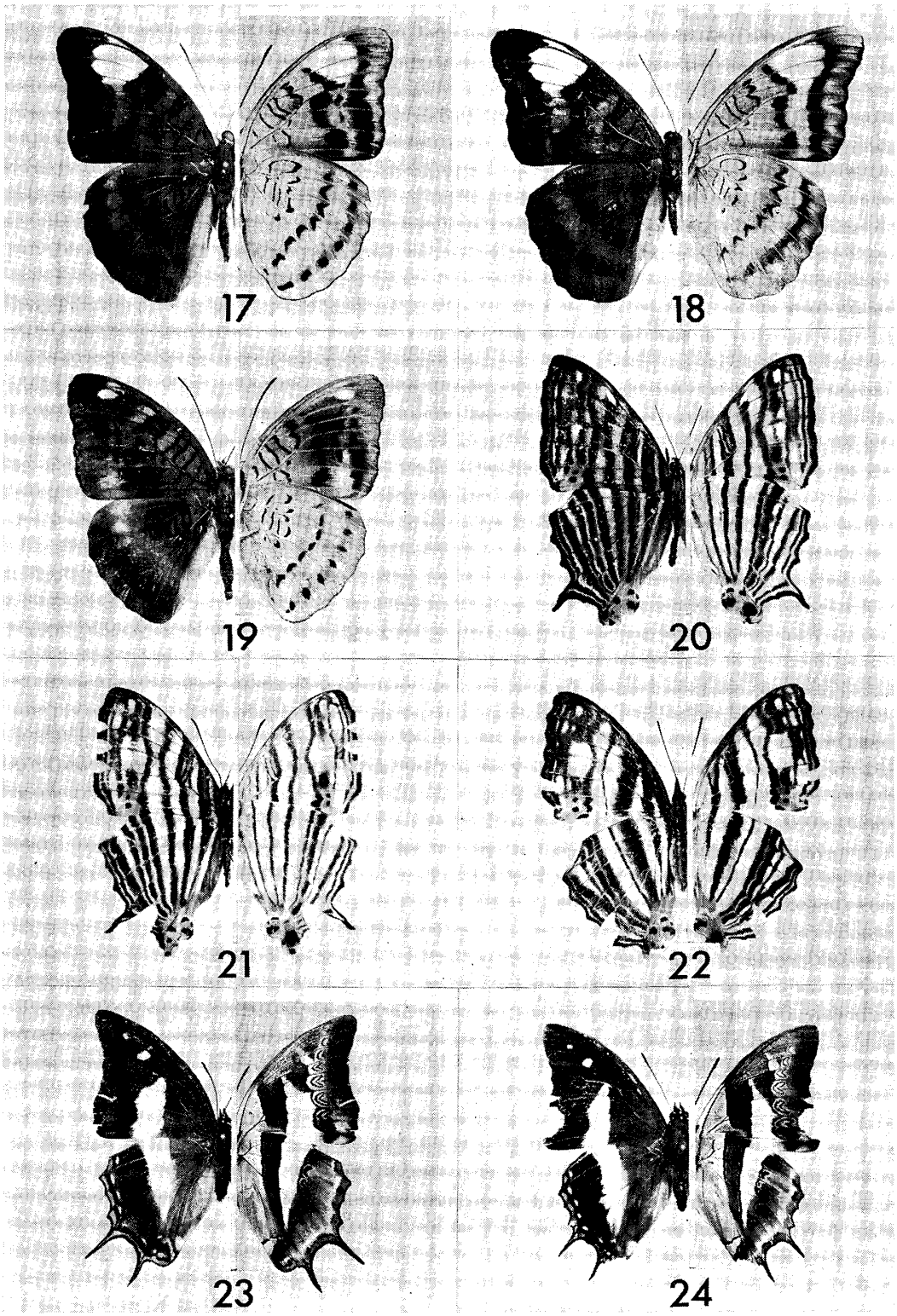


Fig. 17. *Tanaecia howarthi* Jumalon (Holotype, ♂).
Fig. 18. *Tanaecia howarthi* Jumalon (Paratype, ♀).
Fig. 19. *Tanaecia susoni* Jumalon (Holotype, ♂).
Fig. 20. *Cyrestis kudrati* Jumalon (Holotype, ♂).
Fig. 21. *Cyrestis kudrati* Jumalon (Hollotype, ♀).
Pig. 22. *Cyrestis maenalis zamboangensis* Jumalon (Holotype, ♀).
Fig. 23. *Polyura schreiberi bilarensis* Jumalon (Holotype, ♀).
Fig. 24. *Polyura schreiberi bilaransis* Jumalon (Paratype, ♂).

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Upperside of forewing: Ground color black with greenish gloss on the basal area and cell; margin deeply excavated; truncated from vein 2 to tornus; a white discal band as broad as in female *malayicus* Roschild & Jordan running from middorsum to vein 3 close to cell's apex, broad on the dorsum, broader in 1b and 2, tapering to a point in vein 3; between apex and cell, two white spots, the subapical one smaller, the lower one much larger and not paired to a white anterior dot as in *malayicus*.

Upperside of hindwing: Ground color as in forewing with greenish tinge on the basal-tornal area; a continuation of the discal band broad on the costa, tapering to a sharp point ending a little behind the tornal spot forming a prominent elongate triangle; a black marginal band centered with orange lunular line and bordered basad with white broken line, from apex to tornus; a tornal black spot with violet dorsal and basad margin; a subtornal white spot on the margin separated from the violet line by a black line of equal width; the upper tail black the lower one violet with black margins.

Underside of forewing: Ground color brownish olive green; the general pattern recalls Java's *schreiberi* Godt.; two yellowish-white bands, one basal, the other discal; the basal forms a triangle covering obliquely two-thirds of the cell, crossing behind the base on vein 2, and has a brownish tinge and appears slightly darker than in the discal band; the discal band is more or less triangular, standing broadly on the dorsum and tapers upward terminating at the mid-subcostal area, 4 milimeters away from the cell's apex; between these two bands the enclosed ground color is margined on both sides with sharp black lines from the middle of 2 to the subcostal area which is broadly brownish-grey from the cell's apex to subapical area where it blends with the terminus of the postdiscal band; a postdiscal band of brownish-grey with interneural boomerang-like outlines of graduated sizes, that in 1b largest and in diffuse black outline, the rest toward the subapical area are clearly outlined in olivaceous brown, the last spot in 6 centered with white spot, and below the largest one in 1a is a large diffuse round black spot; the band branches off basad on vein 5 in form of a roundish yellowish-white spot and is continued to the costa by a greysh-brown streak; the ground color of the broad distal margin is slightly greyish basad, orangish at apex and violaceous grey basad in 1a and 1b.

Underside of hindwing: Ground color as in forewing; basal band continued down to the abdominal fold, the discal band of the forewing is continued down as in upperside, size unchanged; instead of black boomerang-like patterns the postdiscal band is replaced by red lunular band, the upper three in 5, 6 and 7, separated from the the lower three by the outcurving black distal border of the discal band, the lower ones with white and black basad borders; greenish-grey marginal band centered with broad orange band and bordered basad with basally diffuse greyish-line, tails black with bluish-violet center.

Male as in female.

Holotype: ♀, Bilar, Bohol, September 24, 1973, J.N. Jumalon leg. Paratype: 1♂, San Francisco, Panaon Is., S. Leyte, April 15, 1973, Dodong Borromeo leg.

Type-series is deposited in the University of San Carlos collection.

This bears name of rich type locality.

Seitz (1927) has described a northern Philippine form of *schreiberi* Godt. which this author has not seen, and which is not possessed by any Manila collection. As to this Philippine form *luzonicus* Rosschild & Jordan, Fruhstorfer confessed that it was "Unknown to me in nature". Consequently its description is lacking. However, comparison could be made with the Bornean and Malayan forms pictured Morishita (1972). A female taken by this author recently in Bohol island is thus described as the first known central Philippine form.

## Family Lycaenidae

***Iraota rochana leytensis*** subsp. nov. (Fig. 25)

Female: Antennae, head and body brownish-black; their undersides lighter than ground color.

Upperside of forewing: Ground color brownish-black; the metallic dark blue basal and discal spot covers about one-third only of the wing area, embracing two-thirds of cellule 2 and one half of 3 and 1b; margin mildly convex, apex as in *rochana*.

Upperside of hindwing: Grond color as in forewing; the metallic blue area more extensive than that of *rochana* and *erla* and separated from the margin only by a much narrower black band than that of *rochana*; two short black tails and an indication of a white-tipped "third" tail as in *erla*.

Underside of forewing: Ground color dark brown with reddish tinge; dorsum brownish-grey, 1b and 2 light

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brown, blending gradually with the dark ground color; a long white subcostal or cell streak as in *rochana* although less swollen at apex; five small white subcostal-postdiscal spots, the two distad and basad larger than the rest; submarginal band less distinct and complete than in *lazarena* or *erla*.

Underside of hindwing: Ground color slightly darker than in forewing; a white streak from base to basad fourth of costa; a second white, thicker one, from base to middle of costa but not reaching costa's margin; a third slightly narrower white band from middorsum to middle of wing; a fourth somewhat zigzag thinner white postdiscal band taking the direction of the apex but not reaching it; between postdiscal band and margin is a lighter area of greyish orange-brown which is separated from the margin by an admarginal fine band which is dark brown in the apical area, black in the central part of the margin, punctuated by a roundish black spot behind the "third" tail, and continued to the tornus by a greyish-brown broad marginal band irrorated with blue scales; this band is bordered white basad and distad; distal margin is a thin brown line.

Length of forewing: 19 mm.

Male: Antennae brown with reddish tip above, underside reddish runs to the middle; head and body brown.

Upperside of forewing: Ground color of fresh specimen blackish-brown, a 23 year old male has turned much lighter with no other significant change. Both wings above have no markings; tails are brown with white tips.

Upperside of hindwing as in forewing.

Underside of forewing: Ground color chocolate brown; cell with white streak broader than that of male and similar to *rochana*, including the round spot outside of cell's apex; a postdiscal band of white spots the second one from costa distally removed from the row, the lower part of band, unlike in *rochana* Horst., is dissolved in a broad discal whitish band which overflows into 1b, like in *erla* Frustorfer; a submarginal band of small white spots, finer in the middle, unlike *erla*, its ends does not reach margins of costa and dorsum. Comparisons however, are made with the undersides of the males of *erla* and *rochana*, to which the male of *leytensis* differs so much by its diminutive replica of the white markings of its known congeners.

Underside of hindwing: Color as in forewing; except the discal and basal areas between the white bands which is dark chocolate brown; from base to apex a broad white band which swells at midcostal area, the apical end separated from the whole by a fine brown line, although in another, older female, this is not completely cut-off; from the middle of this band is extended a fine line pointing tornally, almost touching a second white discal band, less broad than in the first; a third zigzagging white postdiscal band margined distally with brown lunular spots, the upper end in cellule 5; a submarginal finer lunular line from tornus to apex, between which and a fine admarginal white line is a greyish-brown area with a large black spot in 2 and another of equal size in the tornal lobe; marginal line brown, fringe, white; tail brown, white-tipped.

Length of forewing: 24 mm.

Holotype: ♀, Tigbawan, Ormoc City, Leyte, May, 1955, Ariel A. Jumalon leg. Paratypes: 1♂ 1♀, Awihao, Ormoc City, Leyte, August, 1940, and May, 1955, J.N. Jumalon leg.

Holotype and male paratype are deposited in the Jumalon family collection. Female paratype is in the University of San Carlos collection.

Compared with Seitz's pictured *lazarena* Felder from Mindoro, this male from Western Leyte more closely resembles Java's *rochana* Horst. in the economy of the metallic blue area. It differs from the margin of the nominotype *timoleon* Fruhstorfer from mainland Asia whose margin is dentate. There is a female from Kantabaco, Cebu near Camp 7, but with marked difference from *leytensis*. I will describe this later as new subspecies.

## Genus ***Pratapa*** Moore

Seitz (1927) described thirty species of the Genus *Pratapa* and in *mamertina* Hew. no subspecies were known at that time. In this author's collection are a male and female from Leyte and a female from Cebu, both apparently unrecorded. Both came from forests of over 1,000 feet elevation.

### ***Pratapa mamertina cebuensis*** subsp. nov. (Fig. 26)

Female: Antennae black; head and thorax brownish-grey with sprinkling of blue scales; abdomen brownish-grey tinged yellow in the ventral area.

Upperside of forewing: Ground color blackish-brown; discal and basal areas with white and blue spots, the distal half pure white, the basal half metallic blue tending to purplish, extending to the basal two-thirds of 1a, curv-

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ing gracefully upwards to serve as dorso-distal border of the lower end of the white spot; this is a wide departure from the female *mamertina* Hew.; the female *rahmanni* Jumalon of Leyte serves as transitional steping-stone with its frugal introduction of white spotting, and the present form, is apparently, the maximum, unless other forms with larger white spots are found in Central Philippines.

Upperside of hindwing: Ground color brownish-grey with blue irrorations on the basal and discal areas as in *rahmanni*, but differs from the latter in the stronger postdiscal black band which clearly reaches the subdorsum area; lower part of submarginal black band is developed into two large black spots each behind the lower and upper tails, the tornal one more diffuse and both bordered with blue distally and feintly basally; heavy scaling of metallic blue between postdiscal and submarginal band; marginal black border distinct as in *rahmanni*; fringe white and tails black fringed with whitish on both sides.

Underside of forewing: Ground color pastel yellow, recalling *mamertina*; the marginal band narrower than that of submarginal, bordered with white and brown fine line; fringe greyish-white.

Underside of hindwing: Color as in forewing; distal band similar to *rahmanni* except that in the submarginal band of black spots, the apical half consists of four round, dark brown spots, and only two black, one tornal and the other in 2 behind the "third" tail, and between them, instead of smaller black spots as in *rahmanni*, a quadrate, white-centered brownish-grey patch; tails brown with white tips and margins; fringe white.

Length of forewing: 17 mm.

Male: unknown.

Holotype: ♀, Camp 7, Minglanilla, Cebu, June 25, 1965, Osman Jumalon leg.

Holotype is deposited in the San Carlos University collections.

***Pratapa mamertina rahmanni*** subsp. nov. (Figs. 27, 28)

Female: Antennae black; head and body greyish-brown with bluish tinge; eyes red; underside of thorax and abdomen flesh color.

Upperside of forewing: Ground color violaceous brown; the margin convex as in *mamertina*, fringe light grey; a basaldiscal light blue area covering the cell, four-fifths of 1b and the basal two-thirds of 1a, and is continued anteriorly by mush lighter or bluish-white spot, covering the basal parts of 2, 3 and 4; the distal and costal areas without marks.

Upperside of hindwing: Color greyish-brown with gloss and with more irroration of blue scales in the basal area than in *mamertina*; a postdiscal lunular line of dark greyish-brown interneural spots that dissipates near dorsum; a submarginal band of blackish-brown spots, that in 2 largest; black marginal border more defined than in *mamertina*, bordered basad with very fine white line; fringe white; tornal lobe with black spot bordered anteriorly with orange; larger tail brown with white tip.

Underside of forewing: Ground color bone white as in *mamertina*; distal area with brick-red bands as in *mamertina*, a postdiscal one has the costal part broad and tapers down to a sharp point in the subtornal area, the other one is sunmarginal of even width from costa to tornal area where it ends enclosing a subtornal black spot and at the same time fusing with the terminal of the postdiscal band, both not reaching the dorsal margin; the marginal band is of slightly lighter chocolate brown, diffuse above and blending with the subapical portion of the submarginal band, and halfway down, separated by a fine yellowish line emanating from the black spot; fringe as in upperside based on fine reddish-brown marginal line.

Underside of hindwing: Color as in forewing; distal area with brick-red bands, the postdiscal one fused on the costa with the slightly lighter submarginal band but stops abruptly in 3 relieved by a somewhat zigazag vivid black line that curves basad before reaching the termen; the submarginal band broadens considerably toward the tornus and behind the tornal lobe projects a line parallel to the terminal of the postdiscal; the widest lower part of the redish-orange submarginal band has three black spots, one on tornus as large as the equally round one in 2, and between them a smaller one with a bluish cap distad; these three spots is continue upward by a whitish lunular line, the lower two spots with dark distal ends; margin with fine black line, margined basad with fine white line and distad with the white fringe; tails darker than upperside.

Length of forewing: 21 mm.

Male: Antennae black with brick-red tip; thorax black with dusting of metallic blue scales; abdomen brown; underside brown with orange tinge.

Upperside of forewing: Ground color black covering only the costa, apical area down to the tornus along the margin, the rest metallic blue, lighter than indigo; the black area of apical region broader than in *mamertina* male; veins black.

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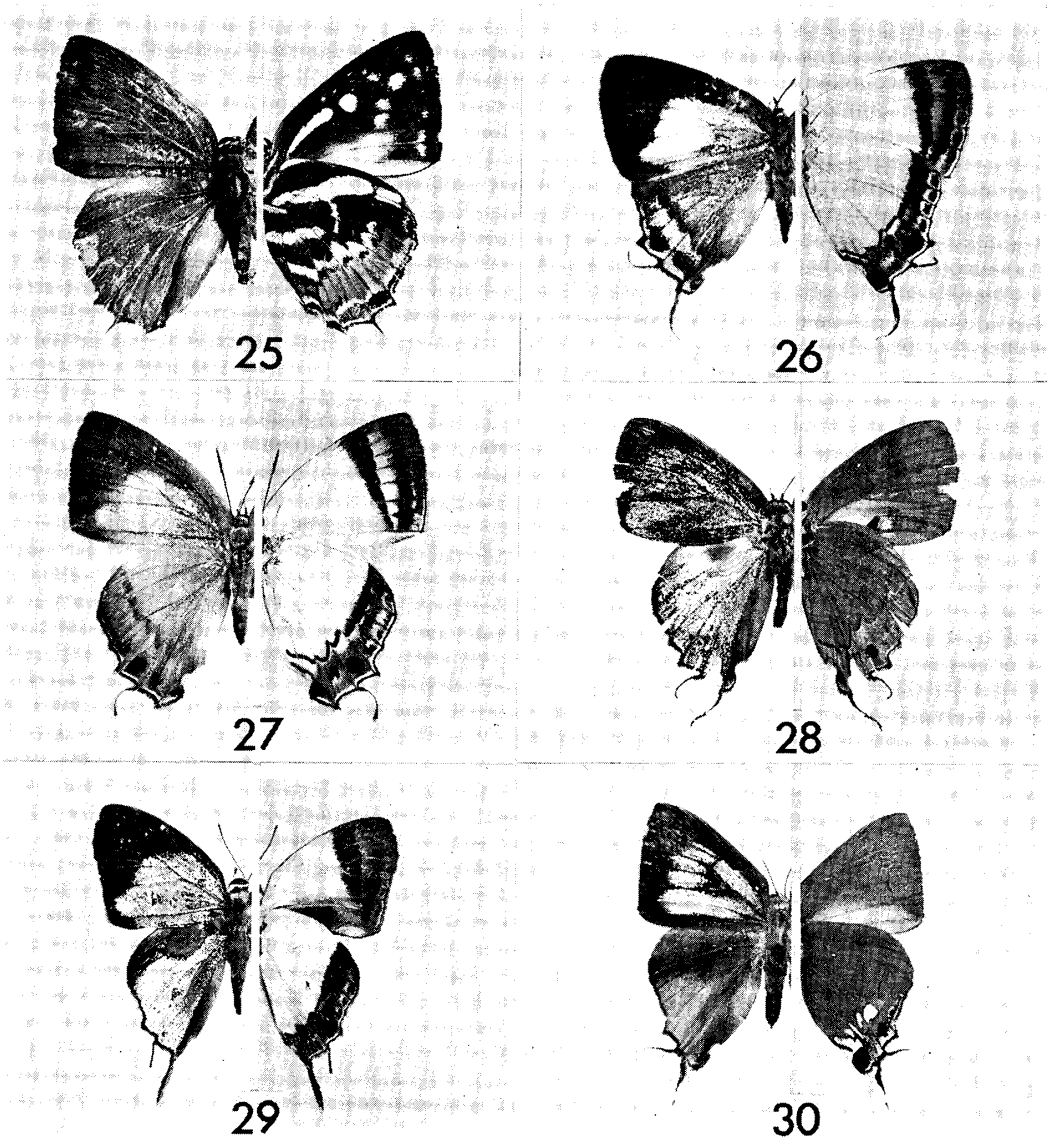


Fig. 25. *Iraota rochana leytensis* Jumalon (Holotype, ♀).
Fig. 26. *Pratapa mamertina cebuensis* Jumalon (Holotype, ♀).
Fig. 27. *Pratapa mamertina rahmanni* Jumalon (Holotype, ♀).
Fig. 28. *Pratapa mamertina rahmanni* Jumalon (Paratype, ♂).
Fig. 29. *Pratapa mandarina treadawayi* Jumalon (Holotype, ♂).
Fig. 30. *Remelana davisi* Jumalon (Holotype, ♂).

Upperside of hindwing: Sex patch on costa grey with large central brown patch; ground color metallic blue as in forewing, but not extending to the abdominal fold which is greyish-brown; tornal lobe reddish-orange with black spot; black marginal line less broad than in *mamertina* male; tails long and black, tipped wihtish; fringe brown.

Underside of forewing: Color brick-red; the sutura silken grey basally and greyish-brown distally; hair pencil on the middle black.

Underside of hindwing: Color as in forewing; unlike *mamertina,* there is an indefinite trace of the division of the distal area into definite macular bands, except for the fine black line in the subtornal area of the dorsum, which in the female is a very strong character, but which however, gives an indication of a postdiscal band through a series of dark red lunular lines fading upward before reaching the costa; the submarginal band in the female is indicated in the male by the two black spots, smaller than those of the female; tails black with whitish tips.

Length of forewing: 20 mm.

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Holotype: ♀, Catmon, St. Bernard, Southern Leyte, June 12, 1967, Osman N. Jumalon leg. Paratype: 1♂, Same data as the holotype.

Type-series is deposited in the University of San Carlos.

Named in honor of Rev. Rudolph Rahmann, SVD, former Rector and President of the University of San Carlos, whose dedication to scientific research and scientific publications is the constant inspiration of both students and faculty.

***Pratapa mandarina treadawayi*** subsp. nov. (Fig. 29)

Male: Antennae black, club reddish-brown; head brownish-black; body greyish-brown dusted with metallic blue scales; the underside of head and body greyish orange-white.

Upperside of forewing: Ground color black; discal and basal parts metallic blue with greenish tinge; black costal band broad like *mamertina* Hew.; the distal and apical black area recalls *pseudolonginus* Doubleday of Java except that the extension of the black area around the tornus is stronger and a bit longer in the present form; the margin has the subapical area convex, the subtornal slightly exacvate.

Upperside of hindwing: Ground color as in forewing; the costa with broad black marginal band; sex patch on costa dark greyish-brown, large bordered in the blue area with black dusting; distal margin with narrow black line; fringe grey-brown, tail dark brown, margined on the upper half with whitish and tipped white.

Underside of forewing: Ground color, chrome yellow or orangish-yellow and stronger than in *mandarina* Hew.; tornal area with broad greyish-brown sutura, centered with dark brownish-grey patch; distal area with broader chocolate brown bands, very similar to *cebuensis* Jumalon except for its broader postdiscal and submarginal bands.

Underside of hindwing: Color as in forewing; distal reddish-brown band as broad as in *mingama* Fruhstorfer and *cebuensis* Jumalon; without the white fringe and the light color between bands, the distal area appears dusky compared to its congeners; the dividing lines, violaceous brown; the two black spots near the bases of the two tails smaller than in *rahmanni* Jumalon and *cebuensis*; tails reddish-brown and lighter than in upperside, withe tipped.

Length of forewing: 18 mm.

Female: Unknown.

Holotype: ♂, Amlan, Negors, Oriental, December, 1969, J.N. Jumalon leg.

Type is kept in the University of San Carlos collection.

Named in honor of Culin G. Treadaway, a devoted student of Philippine butterflies whose collection and rich reference library are a great help to researchers.

## Genus ***Remelana*** Moore

Seitz (1927) listed only the single species *jangala* Horsf. for the genus *Remelana*. The fifteen subspecies presented cover a wide area of distribution. The Philippines is represented by *esra* Fruhstorfer from Palawan, and *westermanii* of which no locality is given. The underside of *jangala* shows a transverse line near the distal margin. The subspecies *travana* Hew. and *ravata* Moore show these fine lines. The author has not observed the two Philippine subspecies, so comparison can only be made with the pictured forms in Seitz. An interesting male from the lowland jungle was taken by the author during his 1961 expedition to Southern Davao, Mindanao. Another expedition to central Davao in 1965 produced another male, this time, at an elevation of about 4,000 feet, on a mountainside forest. Mr. T.G. Howarth of the British Museum saw this butterfly and returned it with the notation: "*Remelana* sp. new! near *jangala* Horsf."

In the various geographical forms presented in Seitz the trend for males is to show a blue basal and discal color on the upper surface, and on the underside, fine cell-end streaks. The specimen from Davao is an abrupt departure from the typical trend in that the discal-basal metallic blue mark is restricted to the forewing alone. The hindwing is about fifty percent brownish-orange, thus presenting a powerful contrast of complementary colors. These markings are enough to classify it as a second species.

***Remelana davisi*** sp. nov. (Fig. 30)

Male: Antennae black, length half of costa; eyes reddish-brown; head and body brown above, ventrally brownish-yellow.

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Upperside of forewing: Apex angled as in *ravata* Moore, strongly curved behind base of wing; ground color black with slight scaling of brown, especially on the wide marginal border of dorsum; basal and discal metallic blue spot covers the cell, from apex of cell distad to half of cellules 4, 3, 2 and 1b, not going beyond vein 1b, and in the holotype, the blue color touches a bit of 5, although in the paratype, this is not so; this blue space is marked at the middle by diffuse black discal, more or less triangular spot produced by the heavy black scalling on the bases of veins 2, 3 and 4; distad of this black area, heavily black-scaled.

Upperside of hin&wing: Ground color yellowish-brown, covering the upper half of the wing from middle to costa, the lower half brownish-orange, margined black at the termen; dorsum from margin to space 1a greyish-brown; tornal lobe dark brown with tiny black spot surrounded by blue scales; the two tails black with white tips, the "third" indication of tail produced like *ravata*'s male.

Underside of forewing: Color copper brown with reddish tinge, although in the male from the lower elevation it is more yellowish or greenish-orange. Possibly the 3,000 feet difference in their habitats has produced the darker color of the holotype. The transverse fine line before the marginal area is scarcely discernible, and in the other male, obsolete, so are the streaks on the vein's end which is prevalent in the forms of *jangala*; the dorsum is broadly pinkish-grey up to 1b.

Underside of hindwing: Ground color as in forewing; the variegated macular marking on the anal area consists of dark brown tornal lobe with black center and another round black spot in front of the "third" tail; between the black spots is a grey area; basad of tornal lobe a metallic green stripe pointing basad, and basad to the second black spot is a roundish white spot with fine black basad and distad margins; between this white spot and the green stripe behind tornal spot are two fine white stripes and a fine metallic green stripe between them; blackish-brown distal margin, and black centered metallic green stripe basad of margin; tail black with white tip; postdiscal fine brown band barely recognizable.

Length of forewing: 18 mm.

Female: Unknown.

Holotype: ♂, Mt. McKinley, Eden, Truil, Davao City, Mindanao, November 3, 1965, J. N. Jumalon leg. Paratype: 1♂, Talaud, Mailta, Davao, September, 1961, J.N. Jumalon leg.

Holotype is in the Jumalon family collection. Paratype is deposited in the University of San Carlos collection.

Named in honor of Dr. Donald R. Davis, Smithsonian Institution, Washington, D.C., for his great work on American moths, especially bagworms and microlepidoptera. He was the author's field companion during the Smithsonian-San Carlos University 1965 Expedition to the Philippines.

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